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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/678,762	10/03/2000	Victor Firoiu	2204/A29	5004

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BROMBERG & SUNSTEIN LLP  
125 SUMMER STREET  
BOSTON, MA 02110-1618

EXAMINER
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LIN, WEN TAI

ART UNIT	PAPER NUMBER
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2154

DATE MAILED: 02/26/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 09/678,762	<b>Applicant(s)</b> FIROIU ET AL.	
	<b>Examiner</b> Wen-Tai Lin	<b>Art Unit</b> 2154	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 January 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-16, 19-28, 31-40, 43-46, 49-52 and 55-58 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 17, 18, 29, 30, 41, 42, 47, 48, 53 and 54 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>#2/1-28-2002</u>  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

1. Claims 1-58 are presented for examination.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 7-16, 19-28, 31-40, 43-46, 49-52 and 55-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skirmont [U.S. Pat. No. 6252848] in view of Elwalid et al.(hereafter "Elwalid")[U.S. Pat. No. 5978356].

4. As to claims 1 and 11-12, Skirmont teaches the invention substantially as claimed including: a method of managing received packets to be transmitted from a network device, each packet being at least one of a first type and a second type [Abstract; Figs. 1-2], the method comprising:

- storing the first type of packets in a first buffer, the first buffer having a first drop function that specifies a first packet drop rate as a function of the

average number of first type of packets in the first buffer, the first drop function having a first average drop rate over a time interval, storing the second type of packets in a second buffer, the second buffer having a second drop function that specifies a second packet drop rate as a function of the average number of second type of packets in the second buffer, the second drop function having a second average drop rate over the time interval [col.2, lines 11-17; col.6, lines 36-57].

Skirmont further teaches adjusting the drop rate of each packet according to a value of a drop function taken as a function of a queue size [Abstract: lines 8-10], wherein each queue is associated with input sources that are marked to a same type.

Skirmont does not specifically teach modifying at least one of the first average drop rate and the second average drop rate if such two drop average rates do not comply with a predefined relationship.

However, Elwalid teaches that a plurality of input sources, each belong to a different class, may share a communication trunk, wherein each class may be regulated independently before the packets are combined into one traffic flow [Fig.2; col.19, lines 46-65]. In view of Elwalid's illustrated examples, it is obvious that Skirmont's independently queued traffics may also be joined to share a same communication link.

Under such circumstances, it is obvious to one of the ordinary skill in the art that the drop rate of Skirmont's independently queued traffics needs to be adjusted not only when the queue size is changed, but also when new traffic sources are added or existing sources are dropped; the latter causes a change in the predetermined

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relationship and the overall traffic throughput. That is, it is necessary to adjust the drop rate of at least one traffic source so that the utilization rate of the communication trunk can be maintained close to 100%.

5. As to claim 2, Skirmont further teaches that the first buffer has a first packet withdrawal rate that specifies the rate that packets are withdrawn from the first buffer, the second buffer having a second packet withdrawal rate that specifies the rate that packets are withdrawn from the second buffer, the act of modifying including: changing at least one of the first packet withdrawal rate and the second packet withdrawal rate [note that this is true in view of Skirmont and Elwalid above because, in general, the withdrawal rate equals the input rate less the drop rate].

6. As to claim 3, Skirmont does not specifically teach that the act of modifying includes modifying the second average drop rate as a function of the average number of packets in the first buffer.

However, under the notation of keeping the output communication link fully utilized, it is obvious that the second drop rate can be derived from the first drop rate, which is based on the average number of packets in the first buffer, and the input rate of each source traffic.

7. As to claim 4, Skirmont further teaches that the first drop function has a first start point and a first end point, the second drop function also having a second start point and a second end point [Fig.2].

8. As to claims 7-8, Skirmont further teaches that the first drop function defines a first curve connecting the first start point and the first end point, the second drop function defining a second curve connecting the second start point and the second end point, the predefined relationship specifying, that the first average drop rate moves along the first Curve at a first rate, the predefined relationship specifying that the second average drop rate moves along the second curve at a second rate, the first and second rates being constant rates, wherein the first rate and second rate are different [Fig.2; note that the straight lines each has a constant slope].

9. As to claims 9-10, Skirmont further teaches that the first type of packets are loss sensitive packets and the second type of packets are delay sensitive packets [Fig.2; e.g., the high marking and low marking curves each corresponds to delay sensitive and loss sensitive packets, respectively.

10. As to claims 13-16, 19-28, 31-40, 43-46, 49-52 and 55-58, since the features of these claims can also be found in claims 1-4 and 7-12, they are rejected for the same reasons set forth in the rejection of claims 1-4 and 7-12 above.

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11. Claims 5-6, 17-18, 29-30, 41-42, 47-48 and 53-54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Golestani [U.S. Pat. No. 5121383];

Giroux et al. [U.S. Pat. No. 5412647];

Kammerl [U.S. Pat. No. 5295135];

Elwalid et al. [U.S. Pat. No. 5978356];

Esaki [U.S. Pat. No. 5850385];

Park [U.S. Pat. No. 6400685];

Chen [U.S. Pat. No. 5533009]; and

Bustini et al. [U.S. Pat. No. 5313454].

13. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 days from the mail date of this letter. Failure to respond within the period for response will result in ABANDONMENT of the application (see 35 U.S.C. 133, M.P.E.P. 710.02, 710.02(b)).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Tai Lin whose telephone number is (703)305-4875. The examiner can normally be reached on Monday-Friday (8:00-5:00) .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (703)305-8498. The fax phone numbers for the organization where this application or proceeding is assigned are as follows:

(703)872-9306 for official communications; and

(703)746-5516 for status inquires draft communication.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

Wen-Tai Lin

February 22, 2004

*Wen-Tai Lin*  
*2/22/04*